

# **PHOTO-TAKING APPARATUS WITH LASER POSITIONING MEANS**

## **BACKGROUND OF THE INVENTION**

The present invention relates to photo-taking apparatus and, more particularly, to a photo-taking apparatus with laser positioning means, which can be controlled to produce a light frame to aim the lens at the object to be photographed.

When taking photos with a camera, the user has to aim the viewfinder eyepiece at the object to be photographed and to focus the lens on the object to be photographed. In certain conditions, for example, when in a crowded area or in the dark, it is not allowed to aim the viewfinder eyepiece at the object to be photographed. Currently, advanced cameras (digital cameras) are commonly equipped with a TFT-LCD for displaying the view of the object to be photographed. By means of the TFT-LCD, the user needs not to view the object through the viewfinder eyepiece when taking photos. However, these advanced cameras are commonly expensive, not everybody can afford.

## **SUMMARY OF THE INVENTION**

The present invention has been accomplished under the circumstances in view. It is one object of the present invention to provide a camera, which uses a laser module to emit a laser beam for producing a light frame around the object to be photographed, so that the user can accurately aim the camera at the object without

viewing through the viewfinder eyepiece. It is another object of the present invention to provide a light frame generating means for view finding, which is suitable for use in any of a variety of photo-taking apparatus including digital cameras, video cameras, digital video cameras, and video cameras. According to the present invention, the photo-taking apparatus comprises a control switch, a laser module controlled by the control switch means to generate a laser beam for producing a light frame around the field to be photographed, a shutter controlled by the control switch means to expose a film to the light of the view of the field to be photographed, and a processor controlled by the control switch to control the operation of the laser module and the shutter for producing a light frame and taking photos.

#### **BRIEF DESCRIPTION OF THE DRAWINGS**

FIG. 1 is an elevational view of a camera with laser positioning means constructed according to the present invention.

FIG. 2 illustrates the internal structure of the camera with laser positioning means shown in FIG. 1.

FIG. 3 is a circuit block diagram of a camera with laser positioning means according to the present invention.

FIG. 4 is a circuit diagram of a digital camera with laser positioning means according to the present invention.

#### **DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT**

Referring to FIGS. 1 and 2, a photo-taking apparatus with

laser positioning means in accordance with the present invention comprises a laser-generating device **10** disposed below the lens **11** thereof, and a two-step press-button control switch **12** adapted to control the shutter and the laser-generating device **10**. When  
5 pressing the two-step press-button control switch **12**, the laser-generating device **10** is driven to emit a laser beam, causing a light frame to be produced around the object to be photographed. When pressing the two-step press-button control switch **12** at the  
10 second time, the laser-generating device **10** is turned off and at the same time, the shutter is released to expose the film to the light of the view of the object to be photographed.

Referring to FIG. 3, the circuit of the present invention is comprised of a control switch **20**, a laser module **21**, a shutter **22**, and a processor **23**. The laser module **21** is equivalent to the  
15 aforesaid laser-generating device **10**, and adapted to emit a laser beam for producing a light frame, i.e., the laser beam of the laser module **21** produces multiple light spots, forming a light frame surrounding the object to be photographed. Thus, the photo taken is the view of the object within the light frame. The light frame can be  
20 as small as for focusing the lens. The shutter **22** is a device adapted to expose a film to the light of the view of the object to be photographed. The control switch **20** is equivalent to the aforesaid two-step press-button control switch **12**, and adapted to control the

shutter 22 and the laser module 21. When pressing the control switch 20, the laser module 21 is driven to emit a laser beam, causing a light frame to be produced around the object to be photographed. When pressing the control switch 12 at the second  
5 time, the laser module 21 is turned off and at the same time, the shutter 22 is released to expose the film to the light of the view of the object to be photographed. As an alternate form of the present invention, laser module control switch and shutter control switch may be separately provided. Further, the photo-taking apparatus  
10 can be a digital camera, video camera, digital video camera, or video camera.

FIG. 4 is a circuit block diagram of a digital camera embodying the present invention. The digital camera uses a DSP (digital signal processor) 30 to process image signal. Image signal  
15 obtained through the shutter 31 is transmitted to the DSP 30 and then processed by the DSP 30 into digital signal, and the digital signal is then stored in the register 34 and displayed on the LCD 33. By means of controlling the DSP 30, obtained digital signal can be stored in the flash memory 34 readable to a computer or flash  
20 memory driver. By means of the control switch 23, the DSP 30 controls the operation of the laser module 21 and the shutter 31.

As indicated above, a camera with laser positioning means according to the present invention provides the following features:

1. The invention uses a laser beam to produce a positioning frame around the selected field, so that the desired photo of the selected field can accurately be taken.
2. By means of the assistance of the light frame of the laser beam, the user needs not to aim the viewfinder eyepiece at the object in the selected field when taking photos.
3. When taking photos, the user needs not to visually check the range of the view of the selected field through the LCD.
4. The circuit design is simple and impact, suitable for use in any of a variety of digital cameras, video cameras, digital video cameras, and video cameras.

A prototype of photo-taking apparatus with laser positioning means has been constructed with the features of FIGS. 1~4. The camera with laser positioning means functions smoothly to provide all of the features discussed earlier.

Although a particular embodiment of the invention has been described in detail for purposes of illustration, various modifications and enhancements may be made without departing from the spirit and scope of the invention. Accordingly, the invention is not to be limited except as by the appended claims.